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College Study Report — 1956

Since the College Study was initiated in 1946, the Population Reference Bureau has each year surveyed the fertility of college graduates in the United States. This year, 11,068 alumni (out of a total of 18,636) who graduated from 95 colleges 10 and 25 years ago, cooperated in the survey. The class of 1946 reflects partial fertility; the class of 1931 reflects completed fertility.

This year marks an important milestone in the College Study, for it was completely reorganized. The data presented in this report were collected by the Bureau and tabulated by the Scripps Foundation for Research in Population Problems of Miami University. This report has been prepared by the staff of the Population Reference Bureau with the assistance of Mr. P. K. Whelpton, Director of the Scripps Foundation and of Miss Patience Lauriat. The 1956 Study was financed in part by a grant from the Population Council.

College graduates are contributing substantially to the nation's baby boom. The 1956 survey of the College Study shows a greater annual gain in fertility* than was recorded in any other of the 10 survey years.†

The no-child and the one-child family pattern so popular among college graduates a generation ago is being replaced by the three-or-more-child family. In this, the college graduate more closely follows the national trend than was the case a generation ago. Today's graduates are marrying younger and starting their families earlier. Those just 10 years out of college already have, on the average, more or almost as many children as those who graduated 25 years ago. With at least 10 more family-building years ahead of them, these younger graduates should end up with considerably larger families than the 25-year graduates now have.

College men are more fertile than college women, it would seem, because the men among both the 10-year and the 25-year graduates have more children than do the women. The fertility of men graduates has tended to increase more rapidly than that of the women,

*As used by demographers, the term "fertility" means the actual reproductive performance of persons, not the ability to reproduce. The latter is known as "fecundity."

† More detailed data than presented in this report, including figures for individual colleges, are published in a tabular appendix which may be obtained upon request.

and this could mean that the fertility differential between the sexes may be increasing.

In recent years, many of the older graduates have been making up for births postponed during the depression years. For the first time since 1946 when the College Study began, the older men graduates have almost enough children to replace themselves. An average of 2.15 children per graduate is needed for replacement. The 25-year men average 2.09 children — an eighth of a child more than the three preceding classes — but the 25-year women fall short of replacement by more than half a child.

The 10-year graduates, the class of 1946, came out of college the year the nation's baby boom began. Each year since, the 10-year graduates have shown consistent fertility gains, but this year the gain equals or exceeds that ever recorded by any group.

The 10-year men now have almost as many children as the 25-year men: 1.90 per graduate for the former and 2.09 for the latter. The 10-year women already average *more* children than the 25-year women: 1.70 per graduate compared with 1.55.

This year's survey also brings to light some interesting fertility differences among the graduates of the various types of colleges. For the completed families of the class of 1931, male graduates of the Mormon colleges report the largest number of children per graduate (2.95). For the fourth consecutive year, Brigham Young University heads the list, with 3.78 children per older male graduate.

Among the 25-year graduates, those of Roman Catholic colleges slightly exceed those of Mormon colleges in number of children per married person or per parent. But fertility differences between the 25-year group and the 10-year group indicate that the younger graduates of Roman Catholic colleges are marrying and bearing children later than the younger graduates of Mormon colleges.

The highest proportion of married graduates is found among alumni of the Mormon colleges; the lowest proportion is found among Roman Catholic college alumni. The proportion is slightly higher among graduates of co-educational colleges than among graduates of all-men or all-women colleges. This is due mainly to the high proportion of Catholic institutions in the latter group.

25-YEAR GRADUATES

Current mortality rates in the first few decades of life are so low in the United States at the present time that college graduates will replace themselves if there are about 2.15 children per graduate. The 25-year graduates (class of 1931) in this year's survey come closer to that replacement level than ever before. Men report 2.09 children per graduate, and women 1.55.

The fertility record of the older group in this year's study is in striking contrast to that of several previous years. Men in the classes of 1921 to 1927 reported fewer than 1.9 children per graduate,

TABLE I: FERTILITY AND MARRIAGE RATIOS OF 25-YEAR AND 10-YEAR MALE AND FEMALE GRADUATES, BY CLASS

Class	Number of Colleges	Number of Children per Reporting Graduate	Number of Children per Reporting Married Graduate	Number of Children per Reporting Parent	Married Graduates per 100 Reporting Graduates	Marriages with Children per 100 Reported Marriages	Number of Graduates with Known Address	Graduates Reporting per 100 Graduates with Known Address
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
MALES								
25-YEAR GRADUATES								
1921	33	1.75	1.87	2.26	94	83	4,473	71
1922	28	1.70	1.85	2.22	92	84	2,884	69
1923	66	1.76	1.89	2.25	93	84	6,454	64
1924	106	1.77	1.84	2.27	96	81	6,845	75
1925	142	1.81	1.90	2.25	95	85	10,000	67
1926	121	1.84	1.96	2.33	94	84	8,609	68
1927	103	1.85	1.98	2.34	94	84	7,272	72
1928	121	1.97	2.10	2.45	94	86	8,685	68
1929	121	1.95	2.09	2.46	93	85	8,832	73
1930	122	1.97	2.09	2.43	94	86	8,140	72
1931	80	2.09	2.20	2.55	95	86	4,265	57
10-YEAR GRADUATES								
1936	32	1.02	1.23	1.67	88	73	6,052	67
1937	32	1.11	1.33	1.72	83	77	5,453	69
1938	84	1.21	1.44	1.82	85	79	11,885	64
1939	136	1.37	1.51	1.88	91	80	12,470	68
1940	171	1.40	1.57	1.92	89	82	20,487	67
1941	154	1.42	1.64	1.99	87	82	16,528	63
1942	121	1.51	1.70	2.02	89	84	12,420	67
1943	129	1.63	1.84	2.16	88	85	11,521	67
1944	109	1.70	1.95	2.28	88	85	5,675	69
1945	86	1.73	1.95	2.25	89	87	4,704	71
1946	79	1.90	2.12	2.44	90	87	3,663	56
FEMALES[1]								
25-YEAR GRADUATES								
1921	34	1.63	1.79	2.31	80	77	2,987	76
1922	32	1.36	1.81	2.25	75	80	2,160	81
1923	69	1.23	1.66	2.16	74	77	4,590	76
1924	112	1.26	1.73	2.23	73	77	6,107	81
1925	138	1.23	1.70	2.21	73	77	6,849	78
1926	121	1.18	1.66	2.16	71	77	6,609	78
1927	116	1.19	1.65	2.17	72	76	6,761	76
1928	125	1.24	1.73	2.24	72	77	7,507	73
1929	131	1.36	1.82	2.33	74	78	7,328	77
1930	134	1.36	1.77	2.25	77	79	7,689	76
1931	81	1.55	1.90	2.40	82	79	4,602	60
10-YEAR GRADUATES								
1936	41	0.95	1.23	1.72	77	71	5,102	68
1937	39	1.06	1.44	1.83	73	78	3,827	75
1938	84	1.10	1.48	1.70	74	88	7,223	76
1939	133	1.11	1.53	1.91	73	80	10,091	78
1940	173	1.15	1.57	1.96	73	80	12,295	78
1941	140	1.19	1.61	1.98	74	81	10,159	78
1942	131	1.23	1.63	2.00	75	82	9,869	79
1943	140	1.30	1.76	2.12	74	83	10,150	76
1944	147	1.39	1.84	2.18	75	84	8,857	78
1945	146	1.43	1.84	2.19	77	84	8,961	79
1946	83	1.70	1.99	2.32	85	86	6,106	63

[1] Questionnaires for the 1956 study were sent all alumnae; in prior studies they were sent only to alumnae listed as ever married (or Mrs.) on the alumnae records. (See text section "Procedures" for reasons for change.) One consequence is that the rates and percentages in columns c, f, and i for women of the classes of 1931 and 1946 were computed in the same way as those for men. For previous classes the rates and percentages were computed from the replies of ever married women and were adjusted to take into account the proportion of the alumnae listed as single. For an explanation of this adjustment see "College Study Report," *Population Bulletin*, Vol. XI, No. 4, June, 1955, p. 47.

while women in the classes of 1923 to 1928 reported fewer than 1.3 children.

For both men and women, most of the increase recorded by this group represents more children per parent, rather than fewer remaining single or fewer of the married remaining childless. This is in contrast to the younger graduates who record marked increases in the number of children per graduate and per married graduate. In other words, the trend in recent years, as indicated by the foregoing comparison of younger and older graduates, has been toward a higher proportion of married graduates, a lower proportion of childless marriages, and a larger number of children per fertile marriage.

For the 11 year period, the Study shows a greater rise in the fertility of male graduates than of female graduates in the 25-year group. Since 1946, when the class of 1921 was surveyed, the men record a 19 percent increase in fertility while the women record only an eight percent increase.

Results of the Study indicate that the fertility of the 25-year women has been consistently lower than that of the men. It declined from 1946 to 1951 but has been increasing since then. Since 1947, the men show a consistent increase in fertility.

The fluctuations in the fertility of the 25-year graduates, both men and women, are partially explained by the fact that they were passing through their years of maximum fertility during the 1920's, when the national birth rate was declining, and during the 1930's, when marriage and birth rates were the lowest ever recorded in the United States. The recent fertility increases among these older graduates may indicate that during the later years of their reproductive span—the more prosperous 1940's and 1950's—they have been "catching up" on the births "postponed" during the earlier depression period.

10-YEAR GRADUATES

The 10-year graduates in this year's survey already have an average of 1.90 children per graduate for the men and 1.70 for the women. In contrast, the 10-year group which reported in 1946 had an average of only 1.02 children for the men and .95 for the women. The fertility of both sexes has increased about 80 percent—or almost doubled—since the first year of the Study.

Since 1945, there has been a substantial rise in the proportion of younger graduates who are married and have children within ten years of graduation. Between 1946 and 1956, according to the Study, the proportion of married men who are parents rose from 73 to 87 percent and for women the increase was from 71 to 86 percent.

The 1946 women already report more children than the 1931 women, and the 1946 men are not far behind those of 1931. These younger graduates have at least 10 more family-building years ahead of them. Unless child-bearing stops abruptly, the younger men will eventually have larger families

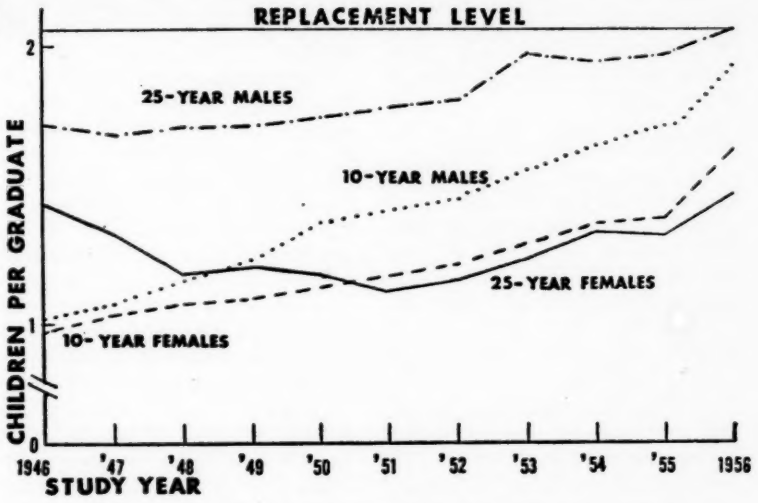

FIGURE 1: CURRENT FERTILITY TRENDS OF COLLEGE GRADUATES

All of the graduate groups reported more children per reporting graduate in the 1956 survey than in the first survey in 1946. With the exception of the 25-year females, the trend for all groups has been consistently upward; the older women show an increase each year since 1951. The greatest increase over the 11-year period is recorded by the younger male graduates.

than the 25-year graduates have reported in this year's survey. The younger women will widen their present margin. The fertility increase shown by the 10-year graduates certainly reflects a tendency to have children at a younger age than the 25-year graduates and probably reflects a tendency to have larger families.

The 10-year married male graduates already have a higher proportion of two- and three-child families than the 25-year graduates. The 10-year women graduates have a higher proportion of two-, three- and four-child families than the 25-year women. For both sexes, the proportion childless is much lower for the 10-year than for the 25-year group.

This year, the gain in the fertility of the younger graduates equals or exceeds the largest previously recorded since the College Study began. This may reflect not only the prosperous years since 1946 but also a change in the attitude of young people toward children and family. For women, however, part of the increase in fertility in this year's survey is a statistical artifact and not a real increase. This is discussed further in the "Procedures" section.

It should be noted that there were only half as many men as women reporting in the 10-year

graduate group. This reflects the smaller number of men in the graduating class of 1946, because of World War II.

BRIGHAM YOUNG HIGHEST IN ALL FOUR CATEGORIES

As in past years, Brigham Young graduates are the most fertile college graduates surveyed. In 1956, they ranked highest in all four groups of graduates: 25-year men with 3.78 children per graduate; 10-year men with 2.84; 25-year women with 2.83; and 10-year women with 2.55.

Children per graduate for the last five years for the ten highest colleges in each category in 1956 are presented in Table II. Some of the colleges in the 1956 survey did not participate in previous years or had fewer than ten graduates return questionnaires.

Twenty-four colleges appear in the top 40 places this year. In the 1955 survey, 31 colleges were in these places. Brigham Young, University of Utah and Wheaton College (Illinois) each appear in all four categories. Two one-sex colleges—Holy Cross (men) and St. Mary's (women) — appear in the two categories possible for them. Both are Roman Catholic colleges.

DIFFERENCES IN FERTILITY PATTERNS

The College Study data make possible analyses which cannot be made from other current data, namely graduates' fertility as related to control of college (government, private, sectarian, etc.) and to one-sex or coeducational college. Table III (pp. 96 to 97) presents summary marriage and fertility data for the different categories of colleges.

It should be emphasized that the following discussion is based on data which treat religion in terms of college administration, not in terms of the graduate. Some students who attend a sectarian college may not be members of the sect represented by the administration. For this reason the differences shown in this report may be less than the actual differentials by personal religious affiliation.

This factor may be particularly important in considering the fertility of graduates of Roman Catholic colleges. Non-Catholics graduating from Catholic colleges may tend to depress the fertility rates for those colleges whereas Catholics attending government, private and Protestant colleges would tend to increase the rates for non-Catholic colleges. This consideration is based on the assumption that religious training at the pre-college levels is more likely to be retained than modified by collegiate experiences.

Fertility of all women graduates is higher for the 10-year than for the 25-year classes in each type of institution, except Roman Catholic and Mormon, due to the greater tendency for the 10-year graduates to marry younger and for those who marry to have at least one child. The same pattern is evident when the number of children per married graduate is considered. In contrast, the 25-year women rank higher in terms of children per parent, except among alumnae of private colleges.

In all four graduate groups, the Mormons lead in average number of children per graduate. Already the younger graduates of Mormon colleges have more than replaced themselves, with 2.65 children per graduate for the 10-year men and 2.24 children for 10-year women. These graduates almost equal the 25-year men who report 2.95 children per graduate and the older women who report 2.45 children.

TABLE II: NUMBER OF CHILDREN PER REPORTING GRADUATE FOR THE TEN HIGHEST COLLEGES IN EACH CATEGORY, 1952-56[1]

College[2]	Number of Children[3] 1956	1955	1954	1953	1952
MALES					
25-YEAR GRADUATES					
BRIGHAM YOUNG U., UTAH	3.78	3.47	3.38	3.96	3.22
Providence, R.I.	2.87	2.43	2.12	2.31	1.83
Holy Cross, C. of the, Mass.	2.87	2.25	2.39	—	—
WHEATON, ILLINOIS	2.77	2.36	2.24	—	—
Asbury, Ky.	2.73	—	—	—	—
Manchester, Ind.	2.61	1.91	2.10	—	—
Utah, U. of, Utah	2.39	2.89	2.75	2.50	2.32
Loyola U., La.	2.39	2.40	2.02	—	—
HEIDELBERG, OHIO	2.24	1.68	1.94	—	—
Mount Union, Ohio	2.23	1.58	1.83	—	—
10-YEAR GRADUATES					
BRIGHAM YOUNG U., UTAH	2.84	2.94	(3.17)	2.38	2.58
Utah, U. of, Utah	2.65	2.17	2.41	2.18	1.23
WHEATON, ILLINOIS	2.36	2.44	2.21	2.29	1.83
Providence, R.I.	2.35	(1.00)	1.32	—	—
MANCHESTER, IND.	2.22	(2.13)	(1.86)	—	—
Ouachita Baptist, Ark.	2.15	(2.00)	(1.61)	—	—
San Jose State, Cal.	2.10	(2.30)	1.62	1.51	1.61
Holy Cross, C. of the, Mass.	2.02	1.71	1.91	—	—
Miami University, Ohio	1.97	(1.50)	—	—	—
Western Reserve U., Ohio	1.91	1.79	—	—	—
FEMALES					
25-YEAR GRADUATES					
BRIGHAM YOUNG U., UTAH	2.83	2.75	(3.78)	2.01	2.29
ROSARY, ILLINOIS	2.40	1.91	2.12	1.52	.75
Utah, U. of, Utah	2.34	2.44	2.21	1.75	2.17
Wheaton, Ill.	2.32	1.38	1.62	—	—
Emmanuel, Mass.	2.17	1.39	—	—	—
ST. MARY'S, NOTRE DAME, IND.	2.05	2.24	1.70	2.10	2.22
Whitman, Wash.	1.92	1.69	1.69	—	—
Muskingum, Ohio	1.86	—	—	—	—
Occidental, Cal.	1.81	1.26	—	—	—
MACALESTER, MINN.	1.72	—	—	—	—
10-YEAR GRADUATES					
BRIGHAM YOUNG U., UTAH	2.55	1.84	2.08	—	—
Wheaton, Ill.	2.25	1.52	1.41	—	—
Utah, U. of, Utah	2.23	1.89	1.69	—	—
Whitman, Wash.	2.21	(1.81)	1.81	—	—
Occidental, Cal.	2.09	1.45	1.82	—	—
Wyoming, U. of, Wyo.	2.07	1.70	1.33	—	—
Saint Rose, C. of, N.Y.	2.05	1.00	1.50	—	—
BATES, ME.	2.02	1.28	1.64	—	—
ST. MARY'S, NOTRE DAME, IND.	2.02	2.21	2.28	2.18	1.81
Western Reserve U., Ohio	2.00	—	—	—	—

[1] Each of the four sections of this table is restricted to colleges with 25 or more graduates reporting in the section in 1956. Averages shown in parentheses for earlier years are based on 10 to 24 replies.

[2] Colleges with 80 percent or more of the graduates with known address reporting in 1956 are shown in CAPITALS.

[3] Dash indicates that the college did not submit data for that category of graduate in the study conducted in that year, that there were no such graduates, or that fewer than 10 returned questionnaires.

TABLE III: Marital Status, Average Number of Children and Percent Distribution by Number of Children Born for Ever-Married Graduates by Classification of College for 25-Year and 10-Year Male and Female Graduates

Classification of College (a)	— Number of — Colleges (b)	— Number of — Graduates Reporting (c)	Percent of Reporting Graduates Ever-married (d)	Number of Children per Reporting — Married Graduate (e)	Number of Children per Reporting — Graduate (f)	Number of Children per Reporting — Parent (g)	Percent Having Specified Number of Children Born[1] None (h)	1 (i)	2 (j)	3 (k)	4 (l)	5+ (m)	Not Reported (n)
						MALES							
25-YEAR GRADUATES	80	2,424	94.8	2.09	2.20	2.55	12.4	16.4	33.0	20.7	10.4	5.9	1.2
Control of College:													
Government	19	493	96.6	1.82	1.88	2.25	13.9	19.7	38.0	16.2	6.7	3.1	2.3
Private	14	470	95.3	1.97	2.06	2.38	13.2	19.2	33.3	21.4	8.7	4.0	0.2
Protestant	39	1,042	96.9	2.04	2.10	2.47	13.4	17.1	33.0	20.4	10.7	4.2	1.3
Roman Catholic	5	250	79.6	2.45	3.08	3.36	8.0	6.5	26.1	23.1	16.6	19.0	0.5
Mormon[2]	3	169	98.2	2.95	3.00	3.21	5.4	6.6	26.5	30.1	16.3	13.8	1.2
Men's Colleges:	12	569	88.8	2.14	2.41	2.74	11.9	14.1	28.9	25.0	10.9	8.9	0.4
Catholic	4	219	78.5	2.46	3.13	3.38	7.0	5.8	26.7	23.3	16.9	19.8	0.6
Other	8	350	95.1	1.94	2.04	2.39	14.4	18.3	30.0	25.8	7.8	3.3	0.3
Coeducational	68	1,855	96.7	2.07	2.14	2.49	12.5	17.1	34.2	19.5	10.3	5.1	1.4
10-YEAR GRADUATES	79	2,041	89.6	1.90	2.12	2.44	11.8	15.0	36.8	22.2	9.1	4.0	1.1
Control of College:													
Government	18	489	93.3	1.88	2.02	2.32	12.5	17.3	39.9	17.3	9.6	2.7	0.7
Private	18	589	90.5	1.87	2.06	2.36	12.2	15.6	38.1	23.5	7.9	2.5	0.4
Protestant	34	561	91.8	1.87	2.03	2.37	11.7	15.1	37.3	22.5	7.6	3.1	2.7
Roman Catholic	6	261	73.9	1.70	2.31	2.66	12.4	14.5	29.5	23.3	10.9	8.3	1.0
Mormon[2]	3	141	93.6	2.65	2.83	3.03	6.8	5.3	29.5	31.1	15.2	12.1	...
Men's Colleges:	11	532	80.5	1.69	2.10	2.47	14.0	15.2	33.6	24.1	6.5	5.6	0.9
Catholic	4	209	70.8	1.71	2.42	2.75	10.8	14.2	27.0	25.7	10.8	10.1	1.4
Other	7	323	86.7	1.68	1.94	2.32	15.7	15.7	37.1	23.2	4.3	3.2	0.7
Coeducational	68	1,509	92.8	1.98	2.13	2.43	11.1	15.0	37.8	21.6	9.9	3.5	1.2

FEMALES

25-YEAR GRADUATES	**81**	**2,755**	**81.6**	**1.55**	**1.90**	**2.40**	**18.0**	**18.5**	**31.9**	**17.1**	**7.3**	**4.7**	**2.5**
Control of College:													
Government	19	611	80.4	1.31	1.63	2.23	23.2	18.9	30.8	15.9	4.3	3.2	3.7
Private	16	705	82.3	1.48	1.79	2.23	16.6	19.5	35.7	16.0	6.9	2.4	2.9
Protestant	36	1,000	82.8	1.53	1.85	2.29	17.8	19.0	33.0	18.4	7.6	2.6	1.8
Roman Catholic	7	309	73.1	1.92	2.62	3.18	16.4	16.4	21.2	15.9	11.1	17.7	1.3
Mormon[2]	3	130	93.8	2.45	2.61	2.94	9.0	13.1	31.1	20.5	11.5	12.3	2.5
Women's Colleges:	15	1,063	79.3	1.62	2.05	2.49	15.3	19.7	30.0	18.0	7.9	6.5	2.5
Catholic	6	296	74.7	1.97	2.64	3.20	16.3	16.7	20.4	15.8	11.3	18.1	1.4
Other	9	767	81.1	1.49	1.84	2.24	15.0	20.7	33.4	18.8	6.8	2.4	2.9
Coeducational	66	1,692	83.0	1.51	1.82	2.33	19.7	17.8	33.0	16.5	6.8	3.6	2.5
10-YEAR GRADUATES	**83**	**3,848**	**85.4**	**1.70**	**1.99**	**2.32**	**12.5**	**18.2**	**35.8**	**21.3**	**8.1**	**2.4**	**1.7**
Control of College:													
Government	19	958	83.2	1.52	1.82	2.22	15.8	17.8	38.1	18.9	5.8	1.5	2.0
Private	19	1,090	90.6	1.84	2.03	2.32	11.3	16.1	38.5	23.2	8.2	1.4	1.2
Protestant	34	1,141	84.2	1.56	1.85	2.16	11.9	21.4	37.0	20.4	5.3	1.4	2.6
Roman Catholic	8	449	77.3	1.84	2.38	2.67	10.4	19.0	23.9	21.9	18.4	6.0	0.3
Mormon[2]	3	210	91.9	2.24	2.44	2.80	11.9	13.0	27.5	24.4	12.4	9.8	1.0
Women's Colleges:	15	1,302	84.1	1.74	2.07	2.38	12.1	18.2	34.2	21.1	10.5	2.9	1.0
Catholic	6	426	77.0	1.84	2.39	2.70	11.0	18.0	23.5	22.3	18.9	6.2	0.3
Other	9	876	87.6	1.69	1.93	2.24	12.6	18.3	38.9	20.6	6.9	1.4	1.3
Coeducational	68	2,546	86.0	1.68	1.95	2.28	12.7	18.2	36.6	21.4	6.9	2.2	2.1

[1]The percentages on each line have been independently rounded and so may not add to 100.0 in all cases. The total number of married persons on whom the percentages are based may be obtained by multiplying the figures in columns (c) and (d) by multiplying the figures in columns (b) and (c).
[2]The University of Utah is classified as a Mormon College.
. . . Less than .05 percent.

The high fertility of the Mormon college graduates reflects both the higher proportion who marry and a larger size family.

The reproductive pattern of the Catholic college group is very different from all the others. Though the marriage rate is low, 25-year graduates of Catholic colleges rank second only to the Mormon college graduates in terms of number of children per graduate; they rank highest in number of children per married graduate and per parent. This means that more of the Catholic graduates who marry have at least one child, and more of those with children have more children than do graduates of other colleges.

Among the 10-year graduates, the men from Catholic colleges have fewer children than those from other colleges, but the women have more than the female graduates of government or Protestant colleges. In terms of children per married graduate or per parent, 10-year graduates of Catholic colleges are exceeded only by 10-year Mormon college graduates.

The fact that alumni of Catholic colleges rank highest in fertility per married person and per parent in the 25-year group, but well below the Mormon group in the 10-year class, could mean that the fertility of the Catholic group has not been rising as much as that of the Mormon group. It seems more likely, however, that the difference is merely one of age at marriage and age at childbearing. There are indications that Catholics marry somewhat later than Mormons, and continue to have children at older ages. By the time the class of 1946 reaches its 25th anniversary, it is quite probable that in the average number of children per married graduate and per parent, the alumni of Catholic colleges will exceed those of Mormon colleges.

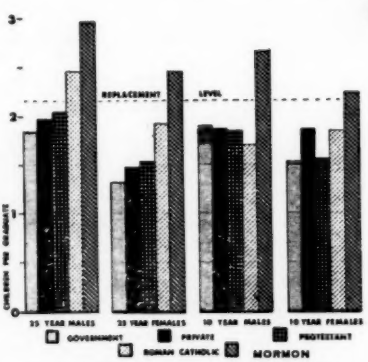

FIGURE 2: CHILDREN PER REPORTING GRADUATE BY CLASSIFICATION OF COLLEGE

For all groups of graduates, Mormon college alumni record the greatest number of children per graduate whereas graduates of government administered colleges show the smallest number. Mormon college alumni in each graduate group are above the replacement level. The only other graduate group which has replaced itself is the 25-year Catholic college alumni.

LESS CHILDLESSNESS AMONG YOUNGER GRADUATES

The distribution by number of children is very similar for the 25-year and 10-year men who have married. Among the younger male graduates, slightly greater proportions have two- and three-child families. The proportion childless among married women graduates is much lower for the 10-year than for

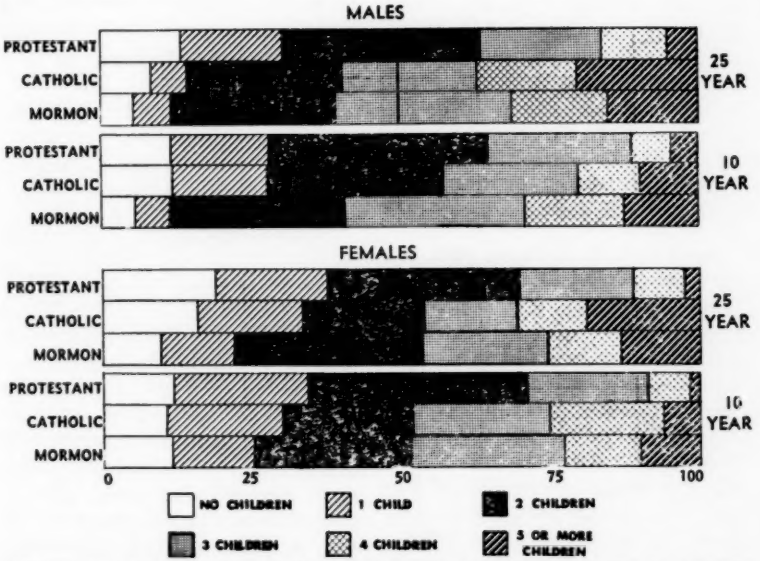

FIGURE 3: PERCENT DISTRIBUTION OF REPORTING MARRIED GRADUATES BY NUMBER OF CHILDREN BORN AND RELIGIOUS CONTROL OF COLLEGE

The proportions of married graduates with five or more children is greatest for the alumni of Catholic and Mormon colleges. The difference in proportions childless are, generally, not as great as among the younger graduates of both sexes as among the older graduates.

the 25-year group and somewhat larger proportions already have had two, three or four children.

A high proportion of the married women graduates of government colleges are childless: 23 percent for 25-year graduates and 16 percent for 10-year graduates. The proportion of childless married men graduates is only slightly higher for government colleges than for all colleges.

The proportion of childless married men among graduates of Catholic colleges is about the same as that for all colleges in the 10-year group, but it is much lower among men in the 25-year group. This may reflect a tendency for marriage and the starting of families to occur at a somewhat older age among male graduates of Catholic colleges than graduates of other colleges. Among women graduates who have married, the proportion childless is only slightly smaller for alumnae of Catholic colleges than of others. In view of Catholic teachings regarding family planning a larger difference would be expected. This suggests that for women also the age at marriage may be higher for those from Catholic colleges than from others.

For the older married graduates, the proportions with "large" fami-

lies (five or more children) are highest for the alumni of Catholic and Mormon colleges. Among the younger graduates, there is less difference between those of Catholic colleges and other colleges. A high percent of the younger graduates of Mormon colleges, on the other hand, have "large" families.

COLLEGE GRADUATES ARE MARRYING YOUNGER

There has been a marked nationwide trend toward earlier marriage during recent years and this trend is particularly evident among college graduates.[1] According to the College Study, the proportion of 10-year men who are married is only five percent below that of 25-year men; the 10-year women are already ahead of their older sisters. However, for the country as a whole, smaller proportions of college graduates marry than do those with less education.[2]

Graduates of government, private and Protestant colleges show only small differences in proportions married. But among graduates of Catholic colleges, the proportion married is significantly lower than that of the other groups because of the celibacy of the Catholic orders.

There are more married persons among the graduates of Mormon colleges than among those of other colleges. The difference is somewhat greater for the women than for the men.

For all categories of colleges, the percent married among 25-year males is greater than that among 10-year males. Except for Mormon college graduates, the reverse situation prevails among women: the 10-year women already record higher proportions married than the 25-year female graduates. There is a high proportion of older Mormon college graduates who are married compared to the younger alumni. This difference may be due to the Mormon custom of designating young men and women to travel for two or more years as missionaries. At the present time about 6,000 young Mormons are travelling on such missions.

A higher proportion of male graduates of coeducational colleges are married than are graduates of men's colleges cooperating in this year's survey. The trend among coed women is in the same direction, but less marked. However, these differences are greatly diminished, or even reversed, if the influence of Catholic celibacy is removed and the non-Catholic coeducational colleges are compared. Such a comparison gives little support to the popular belief that graduates of women's colleges are badly handicapped in the race for husbands or that to go to a coeducational college is virtually a ticket on the "Honeymoon Express."

REGIONAL AND RACIAL DIFFERENCES

Additional data for regions and by race are included in the tabular appendix. They indicate slightly higher proportions married among graduates of western colleges, due primarily to the concentration of Mormons in that region. The participation by Negro colleges was

small this year. However, the data suggest that for men the marriage rate among Negro graduates may be slightly higher than among white graduates.

1950 CENSUS DATA COMPARED WITH 1956 COLLEGE STUDY DATA

Fertility data for college graduates from the 1950 Census provide certain rather general comparisons with the data for the 25-year women graduates (the class of 1931) presented in this report. In the 1950 Census, the cohort of women who were 40-44 years with four or more years of college included the 25-year women, most of whom were 40 to 42 years old in 1950. It is doubtful that the proportion married and the births per college woman 40 to 42 years old in 1950 have increased significantly since then.

It is noteworthy, therefore, that the 1931 women graduates in the College Study show substantially higher fertility than all women graduates aged 40-44 years in the 1950 Census figures.[3] The excess amounts to about 25 percent for births per woman, about 20 percent for births per married woman, and about 11 percent for births per parent. Comparisons between the Census figures and the cohort tables prepared by Mr. P. K. Whelpton indicate an under-reporting in Census returns of children ever born.[4] For the 1950 Census the deficiency in this age group is only about two percent, however, which accounts for only a small part of the difference. It is possible that the higher fertility shown in the College Study is due to selective factors. For example, the graduates of the colleges which cooperate in the study may have larger families than the graduates of other colleges—especially the many colleges with fewer than 500 students which were not invited to participate. Or, within the first mentioned group, a higher proportion of the more fertile women than of the less fertile women may return the questionnaires.

There are important differences between the College Study and the Census data with respect to the proportion of women who have borne various numbers of children. The College Study shows a much lower proportion of women who have had no children or only one, a larger proportion with two children, and relatively larger surpluses for the higher parities. The selective factors outlined above may cause these differences.

This year's survey of the class of 1931 shows a slightly higher percentage of males and females married than do the most nearly comparable 1950 Census figures (men aged 35-44 years and women 40-44 years with four or more years of college.)[5] A very small part of this difference may be due to additional marriages between 1950 and 1956. Part of the difference appears to be due to a bias inherent in the College Study—a tendency for a higher proportion of married graduates than of single graduates to return the questionnaires.

IMPLICATIONS OF COLLEGE FERTILITY TRENDS

In the years ahead, the need for leadership, for top research scientists, and for specialized technical personnel, will become accentuated. This is emphasized by the organization, in May 1951, by the Thomas Alva Edison Foundation, of its first Institute 'to call national attention to the rising scientific and technological manpower needs in the face of the decreasing enrollment of students seeking careers in these fields."[6] The Sixth Thomas Edison Foundation Institute on "The Growing Shortage of Scientists and Engineers," held in 1955, concerned itself with the latest information and proposals. At that Institute, Edward M. Palmquist, Program Director for Education in the Sciences, National Science Foundation, posed the problem in these words:

"Recent history has made it abundantly clear that our future scientists will play a dominant role in determining the nation's peacetime standard of living, in establishing its defenses against attack, and in determining its chances of survival in the event of war. It is understandable, therefore, that many men of diverse interests have examined the adequacy of our present and prospective pool of scientific manpower and have scrutinized procedures in the recruitment and training of scientists. The results of these critical inspections have been neither pleasing nor reassuring for they lead clearly to the conclusion that this country is developing far fewer skillful scientists than it is capable of developing and, further, that our deficiencies here threaten to grow progressively worse.

"As a nation, we have seen repeatedly the unhappy consequences of squaundering our natural resources, and we have become conservation-minded in respect to those resources that affect our material well-being most obviously and directly. Unhappily, we have not yet learned the full lesson. While we have planned, supported, and campaigned for programs aimed at husbanding our forests, soils, and minerals, we have, until very recently, overlooked the tens of thousands of highly able students who leave school far short of the intellectual goals they are capable of attaining, and as a society, we have given little attention to the full development of those who persist in their training. Regardless of the activities of other nations, regardless of threats to our technological supremacy in peace or war, we should treat the intellectual talents of our people as a national resource and prevent its waste or dissipation on trivial pursuits. Aptitude in science is an important segment of this national resource."[7]

The college graduate group within the population assumes an ever greater importance in this situation because the children of college graduates have been and doubtless will continue to be a major source of young men and women qualified for advanced training in college and graduate school. The proportion of children going to college is

larger for college-educated parents than any other group. Today's college graduates are, out of all proportion to their relatively small numbers, the parents of tomorrow's leaders.

College graduates have participated in the nation's baby boom to an even greater extent than other groups within the population.[8] Thus the traditional differentials by educational levels have declined, but they certainly have not completely disappeared. The average family size in the United States is increasing; the average family size of college graduates is also increasing—and possibly more rapidly than in the total population. More time must elapse before the extent of such a trend can be measured and evaluated. It seems certain, even in the short time the College Study has existed, that the alarmingly low fertility displayed by college graduates a generation or more ago, has definitely ended.

SOURCES

For material supplemental to that of the College Study, the following sources were consulted. The reader is referred to them for additional information. Specific text references are given below.

1. Grabill, W. H., C. V. Kiser and P. K. Whelpton. 1950 Census Monograph on Fertility. (In preparation). John Wiley & Son, New York.
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   A. *16th Census of the United States*: 1940. Population. *Differential Fertility 1940 and 1910.* Women by Number of Children Ever Born. Washington, 1945.
   B. *U. S. Census of Population*: *1950.* Vol. IV, *Special Reports*:
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      2. Fertility (Part 5, Chapter C). Washington, 1955.
5. Whelpton, P. K. Cohort Fertility. Native White Women in the United States. Princeton, Princeton University Press, 1954.

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1. Ref. 3, p. 164; *2.* Ref. 4B1, Table 8; *3.* Ref. 4B2, Tables 20 and 22; *4.* Ref. 5, Chapter 3; *5.* Ref. 4B1, Table 8; *6.* Ref. 2, p. v; *7.* Ref. 2, pp. 41, 42; *8.* Ref. 1; Ref. 4A, pp. 11, 156; and Ref 4B2, p. 5c-66.

PROCEDURES

The reorganization of the College Study in 1956 involved certain changes which may affect the comparability of the data with those of previous years. The major changes are noted below.

The number of colleges participating this year is smaller than any year since 1947, and the number of graduates is one-third less than last year's total. This can be attributed to three factors: some revisions of previous procedures; delays incident to the reorganization of the Study; and war service which greatly reduced the number of male graduates in the class of 1946, as compared with earlier years of the Study.

Invitations to participants in the 1956 survey were sent only to colleges with a

total enrollment of 500 or over, which eliminated a number of small colleges that had participated in the Study since its inception. This limitation seemed advisable because the number of participating graduates of most of these colleges would have been too small to have produced statistically reliable averages and proportions. Also, invitations to participants were mailed later than usual, and this may have contributed to the reduction in the number of cooperating colleges.

The notably higher proportion of married women of the classes of 1931 and 1946 probably is, at least partially, a statistical artifact. This year the questionnaire cards were sent to all female graduates, not just to those who were identified as married in the alumnae records as was the prior procedure. This change was made for two reasons. First, some of the women shown as single on the alumnae records actually had married but had neglected to inform the alumnae office. Second, and more important, it was believed that the same procedure should be followed for women as for men, to make the results for the two sexes more comparable. It was suspected that the proportion of male graduates replying was higher for various reasons among those married than among those single, and that this tended to inflate the number of children reported per male graduate. Under the former procedure there was no such bias in the averages for women, because it was assumed that if questionnaires had been sent to single women, the proportion replying would have been the same as the actual proportion of married women who returned the questionnaires.

That the procedural change produced the expected result is shown by the increase in the proportion of married women among 25-year female graduates: from 77 percent in the 1955 survey to 82 percent for this year; among the 10-year graduates the increase was from 77 to 85 percent. In contrast, the proportion married among males graduates rose only one percentage point for both groups. There was also a reduction in the difference between the average number of children per male and female graduate. However, the relative size of the change in fertility between the 1955 and 1956 surveys is practically the same for the colleges cooperating in *either* year as for the smaller number which cooperated in *both* years.

The low ratio of graduates reporting

TABLE IV: NUMBER OF PARTICIPATING COLLEGES AND GRADUATES WITH KNOWN ADDRESS, 1946 TO 1956

Study Year (a)	Total Colleges (b)	Total Graduates (c)	25-Year Men Colleges (d)	25-Year Men Graduates (e)	25-Year Women Colleges (f)	25-Year Women Graduates (g)	10-Year Men Colleges (h)	10-Year Men Graduates (i)	10-Year Women Colleges (j)	10-Year Women Graduates (k)
1946	62	18,614	33	4,473	34	2,987	32	6,052	41	5,102
1947	54	14,524	28	2,884	32	2,360	32	5,453	39	3,827
1948	111	30,152	66	6,454	69	4,590	84	11,885	84	7,223
1949	176	35,513	106	6,845	112	6,107	136	12,470	133	10,091
1950	210	49,630	142	10,000	138	6,849	171	20,487	173	12,294
1951	199	41,905	121	8,609	121	6,609	154	16,528	140	10,159
1952	159	36,324	103	7,272	116	6,763	121	12,420	131	9,869
1953	179	37,863	121	8,685	125	7,507	129	11,521	140	10,150
1954	173	30,692	121	8,832	131	7,328	109	5,675	147	8,857
1955	178	29,494	122	8,140	134	7,689	86	4,704	146	8,961
1956	95	18,636	80	4,265	81	4,602	79	3,663	85	6,106

TABLE V: PARTICIPATION OF GRADUATES, 1956

Group (a)	Total (b)	25-Year Men (c)	25-Year Women (d)	10-Year Men (e)	10-Year Women (f)
Total Graduates	22,686	5,278	6,137	4,298	6,973
Graduates with known address	18,636	4,265	4,602	3,663	6,106
Percent of total	82%	81%	75%	85%	88%
Responding Graduates	11,068	2,424	2,755	2,041	3,848
Percent of graduates with known address	59%	57%	60%	56%	63%
Percent of total	49%	46%	45%	47%	55%

in the 1956 survey is due, in part, to a change in the questionnaire. Analysis of the cards returned in 1955 showed that a considerable number of persons carried as graduates in the alumni records had not actually completed the four-year course and received a degree while others had attended the college only to receive postgraduate degrees (A.M., M.S., D.S.C., Ph.D., M.D., etc.). To minimize this source of error, this year's question on year of graduation included the term "B.A." This was interpreted so rigidly by some colleges that cards were sent only to graduates who had earned a B.A. degree and not to graduates with a B.S. degree. Because the entire survey was delayed due to the reorganization, some of the colleges may not have followed-up on non-respondents of the first mailing as thoroughly as in previous years. Also, a considerable number of cards had to be discarded because they could not be identified as to sex.

The detailed tabulations showing the data furnished by all participating colleges are being published in an appendix which is available upon request.

THE NEED FOR THOUGHT

Excerpts from an address by Dr. Brock Chisholm, former Director General of the World Health Organization, delivered at the Annual Meeting of the Planned Parenthood Federation, New York, May 3 1956.

On top of all those [world social, economic and political problems] is the population problem. And this population problem is on a somewhat different plane from the others, because as it becomes worse daily (as it is doing), it complicates every one of the other problems. Indeed, there is no likely solution for many of the greatest problems of the world until, or unless, we can do something more effective about population. In many countries, population—actual population pressure of the moment—is the major present difficulty, as in the case of India and at least four or five other countries of the world. And almost all countries can see themselves moving in that direction, so that in the not-distant future population will too become their major problem.

We have been rather blithely going ahead to assist other governments, other countries, other peoples to improve their standard of living, to use more stuff and things, to find new ways of spending money, new ways of enjoying life; often we haven't looked at some of the consequences. If for a moment we were to consider such countries as India, China, say all of Africa, or almost all of Africa, and wonder what those countries would be like if they had a North American standard of living, this becomes an almost impossible concept. Because if one were to take enough land out of production in those countries to build the necessary golf courses, the offices and houses, and the four and six-lane highways and garages and sports grounds and all of the things which we regard as essential for our standard of living, the production of food would become an increasingly tremendous problem for the fast-increasing number of people.

Ignorance and poverty and illness are amongst these same problems. Whenever we look at all these problems, as many of us do try to do, it does appear that the human race is providing so many problems in so many parts of the world that are not necessarily natural problems at all, but are the result of man's behavior. It would appear that our real problem is man. The real problem is man's attitude, man's ways of thinking or of not thinking, his ability just to accept without thinking in terms appropriate to the real situation of the moment.

There is something to be said for not looking at all problems, because the result of really facing up to all world problems is very disconcerting indeed. It makes one wonder about man and

what hope there is, in fact, for him at all. In fact, one may be impressed with the probability, or at least possibility, that man at this stage of his development is, in fact, in some such position as ichthyosaurus or brontosaurus or dinosaur or some of the rest of them were shortly before they disappeared.

Man is in a situation where he must learn how to make major adjustments to a new kind of world, kinds of adjustments that could not be envisaged by any of our ancestors at any time, because they had not the information available, because their world was a different kind of place. They still functioned in terms of competition, usually ruthless competition, eventually leading to warfare. It has become very clear now that a continuation of that attitude is synonymous with suicide for all of us, that there is no security to be found for the human race in ruthless competition.

• • •

When any of us really tries to think, we creak very badly indeed. We find it extremely painful because it isn't a thing we have ever learned or been taught to do. In fact, generally, almost all of us have been prevented from thinking by being given all the correct answers when we were small children. Our parents had them; they knew all the answers, purely by accident of course, but it was taken for granted that our parents were right about everything and those unfortunate people who didn't believe with them ought to be punished for it or beaten out of it or even damned because they didn't agree.

It is quite clear that the problems of the world are not going to be solved from the point of view of the welfare of any one group, including any one nation. In order to begin to solve the problems of the world, it is true we must do many things about our own peoples within our own nations, but we are also going to have to develop a degree of identity with the peoples of the world, an ability to face up to world problems.

Of course, we all have been talking about world problems for quite a long time. Our method of coping with them was to tell other people what they should do about them, and how they should behave, particularly other people outside our own country. I would suggest that that has now all been done and it is probably not useful to go on doing it. It has never been effective, it has not changed the attitudes of other people and it isn't going to. What we can do, or perhaps we can do, is to do something about ourselves. But it is so much easier to do something about somebody else and far more pleasant, because it gives us a feeling of very pleasant superiority in recognizing their mistakes.

We even tend to disassociate ourselves, those of us who live in such countries as the United States or my own country, Canada, from world population problems. It is not sound for us to do that. We are a part of the world and we are not going to be left in any reasonable degree of peace and security unless we feel and think in world terms. And we had better do it rather quickly.

• • •

It is essential that the people of the world capable of thinking insist now that the United Nations do its job, that the Population Commission do the job it was set up to do and which up to now it has not been allowed to do. The World Health Organization and UNESCO, the United Nations itself, as well, are adequately designed and perfectly competent to do tremendous work in this field. Not one of them is allowed to do anything significant about it because a majority of delegates to every international meeting come under instructions to see that nothing is done in these fields.

Countries whose prestige is high inevitably have great responsibilities and this is one field in which it will require tremendous pressure on international agencies to get something done. Governments do not apply pressure until and unless pressure is first applied to them. They don't kick unless they are first kicked. Governments do not lead their people very far. They follow their people. No government can go very far in international meetings in misrepresenting the

attitudes of its people. And governments, eventually, are led or pushed by the attitudes of their populations.

That, in a democracy, means voluntary agencies—groups of people banded together to get things done, to see that things are done that can be done by people themselves, wherever they live. Elements of these tasks, however, must be undertaken by public bodies including national and international bodies, and governments. But the voluntary agency is an absolutely essential part in getting things done the way we are organized, and I hope it always will be. These things will not be done unless a sufficient number of mature people insist that they be done, even at the expense of a great deal of work in education and sometimes even some overriding of irrelevant prejudices.

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The Australian Consulate-General
206 Sansome Street
San Francisco 4, California

The Office of the Australian High Commissioner
Royal Bank Chambers
100 Spark Street
Ottawa, Canada

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